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EXAMINER

MOORTHY, ARAVIND K

ART UNIT PAPER NUMBER

2131

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/555,707

Applicant(s)

TRANCHARD ET AL.

Examiner

Aravind K Moorthy

Art Unit

2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) 13 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-14 are pending in the application.
2. Claims 15 and 16 have been cancelled.
3. Claims 1-14 stand being rejected.

Response to Amendment

4. The examiner approves the amendments made to claims 13 and 14. However, there are new objections to claims 13 and 14.

Response to Arguments

5. Applicant's arguments filed 7/7/04 have been fully considered but they are not persuasive.

On page 7, the applicant argues that Kurihara and Wasilewski are references that are not properly combined. The applicant argues that there is no suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or to combine reference teachings.

The examiner respectfully disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the use of scrambling systems in digital audiovisual transmission systems is well known in the art. Also, the use of a randomizing

Art Unit: 2131

control word for scrambling provides improved security over a non-randomizing control word or encryption key.

Specification

This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino

Art Unit: 2131

acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

6. Claim 13 and 14 are objected to because of the following informalities: grammatical error.

In claims 13 and 14, the word "claim" should be in singular form. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,069,956 to Kurihara in view of U.S. Pat. No. 5,870,484 to Wasilewski et al.

Regarding Claim 1, Kurihara discloses:

- a scrambling unit comprising an input for receiving an assembled transport packet stream from a physically separate multiplexer (See "MULTIPLEXER 3" and "SCRAMBLER 1" of Fig. 2 and text of column 5, lines 13-17), an output for sending the scrambled transport stream to a transmitter means for subsequent transmission (See transmission line or channel 49 of Fig. 18, and corresponding text of column 16, line 2), so as to permit the scrambling of the transport packet stream by the scrambling unit independently of the multiplexer operations (See

“MULTIPLEXER 3” and “SCRAMBLER 1” of Fig. 2 and text of column 5, lines 13-17).

However, Kurihara does not disclose:

- The scrambling unit is for a digital audiovisual transmission system.
- The scrambling device is for scrambling the received transport stream according to a randomizing control word.

Wasilewski et al. discloses:

- The scrambling unit is for a digital audiovisual transmission system (See first sentence of the abstract).
- The scrambling device is for scrambling the received transport stream according to a randomizing control word (See column 20, lines 2-7).

Kurihara could have been modified by Wasilewski et al. to arrive at the claimed invention in the following way:

- The scrambling unit of Kurihara could be explicitly for the scrambling of digital audiovisual data as disclosed by Wasilewski et al.
- The scrambling device of Kurihara could be for scrambling the received transport stream according to a randomizing control word as disclosed by Wasilewski et al.

One of ordinary skill in the art would have been motivated to apply the above combination because the use of scrambling systems in digital audiovisual transmission systems is well known in the art. Also, the use of a randomizing control word for scrambling provides improved security over a non-randomizing control word or encryption key.

Art Unit: 2131

Regarding Claim 10, the combination of Kurihara and Wasilewski et al. discloses all of the claimed subject matter of Claim 1, as applied to Claim 1 above. Note that the additional claim limitation is disclosed by Wasilewski et al. of the above combination. Specifically, Wasilewski et al. discloses:

- The scrambling system comprising a scrambling unit as claimed in Claim 1 together with central control means for generating a control word sent to and received by the scrambling unit for scrambling the transport stream (See Fig. 2C and corresponding text of column 20, lines 48-59).

Regarding Claim 11, the combination of Kurihara and Wasilewski et al. discloses all of the claimed subject matter of Claims 1 and 10, as applied to Claims 1 and 10 above. Note that the additional claim limitation is disclosed by Wasilewski et al. of the above combination. Specifically, Wasilewski et al. discloses:

- The scrambling system comprising one or more access control systems connected to the central control means and adapted to receive a control word supplied by the central control means and to send back to the central control means an encrypted message containing the control word (See column 19, lines 27-32).

Regarding Claim 12, the combination of Kurihara and Wasilewski et al. discloses all of the claimed subject matter of Claims 1 and 10, as applied to Claims 1 and 10 above. Note that the additional claim limitation is disclosed by Wasilewski et al. of the above combination. Specifically, Wasilewski et al. discloses:

- The scrambling system in which some or all of the data sent from the central control means to the scrambling unit is authenticated by the central control means

Art Unit: 2131

by generation of a signature in accordance with a secret encryption key (See Fig. 3B and corresponding text of column 11, lines 20-23)

Note that while Wasilewski et al. discloses that the digital signature authenticates the EMM (and control word within) to the set top unit, both the purpose and the data that is authenticated is the same as the applicant's.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,069,956 to Kurihara in view of U.S. Pat. No. 5,870,474 to Wasilewski et al., in further view of T. Maples and G. Spanos, "Performance Study of a Selection Encryption Scheme for the Security of Networked, Real-Time Video," In Proc. 4th Intl. Conf. On Computer Communications and Networks, 1995.

Regarding Claim 2 the combination of Kurihara and Wasilewski et al. discloses all of the claimed subject matter of Claim 1, as discussed with respect to Claim 1 above. Furthermore, it is noted that the scrambling performed as disclosed by Kurihara (See: column 6, lines 30-32) is inherently scrambling of all data of the data packets, as this is the default scrambling that is done when neither partial nor non-partial scrambling is specified.

However, the combination of Kurihara and Wasilewski et al. does not disclose:

- The scrambling unit of Claim 1 in which the scrambling device is adapted to carry out scrambling on some of the payload of selected packets of the transport stream packet.

Maples and Spanos disclose:

- Selective encryption of digital audiovisual data (See paragraph 1 of Abstract).

Art Unit: 2131

The combination of Kurihara and Wasilewski et al. could be modified by Maples and Spanos to arrive at the claimed invention in the following way:

- The scrambling unit of Claim 1 could be modified in such a way that the scrambling device is adapted to carry out scrambling on some or all of the payload of selected packets of the transport stream packet.

One of ordinary skill in the art would have motivated to apply the above modification because selective encryption outperforms full encryption (See Maples and Spanos: paragraph 2 of the Conclusion).

9. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kurihara and Wasilewski et al., as applied to claim 1 above, and further in view of U.S. Pat. No. 6,233,253 to Settle et al.

Regarding Claims 3 and 4, the combination of Kurihara and Wasilewski et al. discloses all of the claimed subject matter of Claim 1, as discussed with respect to Claim 1 above. However, the above combination does not disclose:

- The scrambling unit further comprising a packet insertion means for inserting transport packet data in the transport stream by detecting the prescence of a null packet and replacing a null packet by the packet to be inserted.

Settle et al. discloses:

- The scrambling unit further comprising a packet insertion means for inserting transport packet data in the transport stream by detecting the prescence of a null packet and replacing a null packet by the packet to be inserted (See column 12, lines 50-52).

Art Unit: 2131

The combination of Kurihara and Wasilewski et al. could have been modified by Settle et al. to arrive at the claimed invention in the following way:

- The scrambling unit could further comprise a packet insertion means for inserting transport packet data in the transport stream by detecting the prescence of a null packet and replacing a null packet by the packet to be inserted.

One of ordinary skill in the art would have been motivated to apply the above combination because replacing unused data (null packets) with relevant data uses the bandwidth more efficiently.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kurihara and Wasilewski et al., as applied to claim 1 above, and further in view of U.S. Pat. No. 6,424,361 to Chapuis.

Regarding Claim 5, the combination of Kurihara and Wasilewski et al. discloses all of the claimed subject matter of Claim 1, as discussed with respect to Claim 1 above, but does not disclose:

- The scrambling unit further comprising packet filter means for identifying and copying ot a memory part or all of a predetermined transport packet.

Chapuis discloses:

- The scrambling unit further comprising packet filter means for identifying and copying to a memory part or all of a predetermined transport packet (See “DEMULTIPLEXER 5” of Fig. 1 and corresponding text of column 3, lines 18-20).

The combination of Kurihara and Wasilewski et al. could be modified by Chapuis to arrive at the claimed invention in the following way:

- The scrambling unit disclosed by the combination of Kurihara and Wasilewski et al. could incorporate the filter means for identifying and copying to a memory part or all of a predetermined transport packet disclosed by Chapuis.

One of ordinary skill in the art would have been motivated to apply the above combination because Wasilewski et al. discloses that packets representing a specific program are selected (See column 3, lines 55-56). This packet selection could be improved upon through the use of the filter for identifying and copying to memory part of or all of a predetermined transport packet.

11. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kurihara and Wasilewski et al., as applied to Claim 1 above, and further in view of U.S. Pat. No. 5,991,912 to Mao.

Regarding Claim 6, the combination of Kurihara and Wasilewski et al. discloses all of the claimed subject matter of Claim 1, as discussed with respect to Claim 1 above, but does not disclose:

- The scrambling unit further comprises packet deletion means for deleting a predetermined packet or set of packets.

Mao discloses:

- The scrambling unit further comprises packet deletion means for deleting a predetermined packet or set of packets (See “438”, “442”, and “446” of Fig 4. and corresponding text of column 4, lines 50-52).

Art Unit: 2131

The combination of Kurihara and Wasilewski et al. could be modified by Mao to arrive at the claimed invention in the following way:

- The scrambling unit could further comprise packet deletion means for deleting a predetermined packet or set of packets.

One of ordinary skill in the art would have been motivated to apply the above combination because the deletion of corrupted packets is essential in order to view transmitted digital audio and visual data.

Regarding Claim 7, the combination of Kurihara, Wasilewski et al. and Mao discloses all of the claimed subject matter of Claims 1 and 6, as discussed with respect to Claims 1 and 6 above. Note that the additional claim limitation of Claim 7 is disclosed by Mao of the above combination. Specifically, Mao discloses:

- The packet deletion means deletes a packet by transforming the packet ID of the packet to that of a null packet. (See “438”, “442”, and “446” of Fig. 4 and corresponding text of column 4, lines 50-52).

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kurihara and Wasilewski et al. as applied to Claim 1 above, and further in view of U.S. Pat. No. 6,233,256 to Dieterich et al.

Regarding Claim 8, the combination of Kurihara and Wasilewski et al. discloses all of the claimed subject matter of Claim 1, as applied to Claim 1 above, but does not disclose:

- The scrambling unit further comprises packet counting means for counting the number of packets of a predetermined packet ID value in the received transport data stream.

Art Unit: 2131

Dieterich et al. discloses:

- packet counting means for counting the number of packets of a predetermined packet ID value in the received transport data stream (See column 8, lines 3-8).

The combination of Kurihara and Wasilewski et al. could have modified by Dieterich et al. in the following way:

- The scrambling unit could further comprise packet counting means for counting the number of packets of a predetermined packet ID value in the received transport data stream.

Dieterich et al. discloses a method and apparatus for analyzing and monitoring packet streams in "real time" (See abstract of Dieterich et al.). One of ordinary skill in the art would have motivated to apply the above modification because the use of a system to analyze and monitor packet streams in "real time", could improve the system of the combination of Kurihara and Wasilewski et al. This improvement could be an improvement of the bandwidth for the transmission of data.

13. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kurihara and Wasilewski et al. as applied to Claim 1 above, and further in view of Sakazaki et al.

Regarding Claim 9, the combination of Kurihara and Wasilewski et al. discloses all of the claimed subject of Claim 1, with respect to the discussion of Claim 1 above. However, the references do not disclose:

- The scrambling unit further comprising packet ID re-mapping means for changing the packet ID value assigned to a predetermined packet or set of packets.

Art Unit: 2131

Sakazaki et al. discloses:

- The scrambling unit further comprising packet ID re-mapping means for changing the packet ID value assigned to a predetermined packet or set of packets (See column 12, lines 66-67, and column 13, lines 1-3).

The combination of Kurihara and Wasilewski et al. could have been modified by Sakazaki et al. to arrive at the claimed invention in the following way:

- The scrambling unit could further comprise packet ID re-mapping means for changing the packet ID value assigned to a predetermined packet or set of packets.

Kurihara, of the combination of Kurihara and Wasilewski et al., discloses a communication network for transmission in which data is multiplexed (See first sentence of the abstract). One of ordinary skill in the art would have been motivated to apply the above modification because changing the PID of predetermined packets benefits a communication network for transmission in which data is multiplexed.

14. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kurihara and Wasilewski et al. as applied to Claims 1 and 10 above, and further in view of U.S. Pat. No. 6,151,394 to Tatebayashi et al.

Regarding Claim 13, the combination of Kurihara and Wasilewski et al. discloses all of the claimed subject matter of Claims 1 and 10, as applied to Claims 1 and 10 above. Wasilewski et al. further discloses:

Art Unit: 2131

- The scrambling system comprising a scrambling unit and associated central control means associated with the generation of a single transport stream (See column 19, lines 53-61).

However, the combination of Kurihara and Wasilewski et al. does not disclose:

- a plurality of scrambling units.

Tatebayashi et al. discloses:

- a plurality of scrambling units (See column 10, lines 60-63).

The combination of Kurihara and Wasilewski et al. could be modified by Tatebayashi et al. to arrive at the claimed invention in the following way:

- The scrambling system could comprise a plurality of scrambling units and central control means associated with the generation of a single transport stream.

One of ordinary skill in the art would have been motivated to apply the above modification because a plurality of scrambling modules can be used as opposed to one scrambling module to reflect different levels of encryption, as in the different levels of encryption disclosed by Wasilewski et al (See column 7, lines 64-67).

15. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kurihara and Wasilewski et al. as applied to Claims 1 and 10 above, and further in view of U.S. Pat. No. 4,969,188 to Schobi.

Regarding Claim 14, the combination of Kurihara and Wasilewski et al. discloses all of the claimed subject matter of Claims 1 and 10, as applied to Claims 1 and 10 above.

However, the combination of Kurihara and Wasilewski et al. does not disclose:

Art Unit: 2131

- The scrambling system in which the scrambling unit is adapted to store its working configuration characteristics and/or the current control word value.

Schobi discloses:

- The scrambling system in which the scrambling unit is adapted to store its working configuration characteristics and/or the current control word value (See column 3, lines 66-67).

The combination of Kurihara and Wasilewski et al. could be modified by Yoshida et al. to arrive at the claimed invention in the following way:

- The scrambling unit in the scrambling system could be adapted to store its working configuration characteristics and/or the current control word value.

One of ordinary skill in the art would have been motivated to apply the above modification because storing the key used in a scrambling unit allows the scrambling unit to access the keys and perform the scrambling.

Conclusion

16. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2131


however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aravind K Moorthy whose telephone number is 703-305-1373. The examiner can normally be reached on Monday-Friday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R Sheikh can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aravind K Moorthy
September 29, 2004


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